

clivus; remainder of palps, except posteriorly on tibia and chela and on fingers, evenly granulate and beset by thickened setae (fig. G and I). Trochanter with a distinctly conical protuberance or heel behind, 1.3 times as long as broad; femur typical, 2.3 times as long as broad; tibia normal, subequal to femur in length, 2.1 times as long as broad and 1.2 times as long as hand; chela 2.7 times as long as broad and almost 1.3 times as long as breadth of trochanter; fingers scarcely longer than hand but clearly longer than its breadth; hand very slightly broader than deep and 1.3 times as long as broad. Chelicerae typical, galea with 6 branches (fig. E). Length of adult, ♀ 2.1 mm.

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### **A New Louse from Domestic Chickens (Mallophaga: Philopteridae).**

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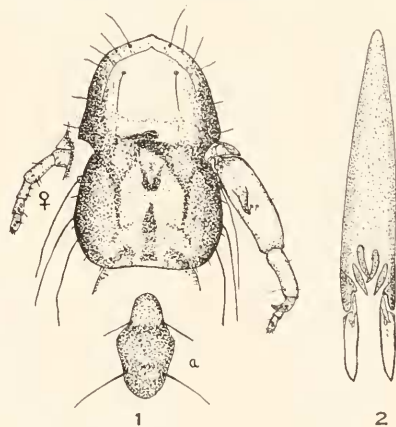
During a collecting trip in the southern Bahama Islands in the summer of 1930 I found a new biting louse (order Mallophaga) on the heads of chickens in four localities. The common chicken head louse (*Lipeurus heterographus* Nitzsch) was not found. Four other species of lice common on chickens throughout the world were found in connection with the new species; namely, the wing louse (*Lipeurus caponis* Linn.), the fluff louse (*Goniocotes hologaster* Nitz.), the shaft louse (*Menopon gallinae* Linn.), and the brown chicken louse (*Goniodes dissimilis* Nitz.). According to the natives, the original stock of their poultry was obtained from Haiti or Santo Domingo, so this is evidently a tropical species. This is further evidenced by the fact that specimens from domestic chickens from Venezuela and Liberia were found in the collection of the National Museum.

#### ***Lipeurus tropicalis* n. sp.**

Described from 42 individuals collected from chickens in the Bahama Islands, by myself, as follows: Four males, two females, and one immature form from Great Ragged Island, July 3, 1930 (Bishopp No. 15063); eight males, nine females, and one immature form from Providenciales, Caicos Islands, July 23, 1930 (Bishopp No. 15144); one male, one female,

and four immature forms from Grand Turks Island, July 31, 1930 (Bishopp No. 15193); and three males, three females, and five immature forms from Great Inagua Island, August 10, 1930 (Bishopp No. 15276). Also described from specimens in the National Museum as follows: One female collected from chicken at Ciudad Bolivar, Venezuela, July, 1925, by L. H. Dunn; and two males and two females collected from chicken at Reppo's Town, Liberia, August 31, 1926, by Prof. Jos. Bequaert.

Description of MALE. *Head* one and one-half times as long as wide, obtusely angled in front; forehead widest just before the large and movable trabeculae. Head little wider across temples than before trabeculae. Temples broadly rounded. Posterior edge of head slightly concave. Eyes clear and protruding, with a long dorsal ocular seta. Color light brown with dark brown lateral borders, antennal and occipital bands, esophageal sclerite, mandibles, and a long narrow gular signature. Antennae almost as long as head, reaching, if extended backwards, beyond the prothorax. First segment pale, greatly enlarged, and elongated, being as long as the remaining four segments combined and bearing a dorsal projection from the middle of the segment. Segment 2 half as long as segment one and longer than segments 3, 4, and 5 combined. Segment 3 dark brown and formed into a dorsal inward pro-



Explanation of Figures.

Fig. 1. Head of male, dorsal; female antenna at left. All  $\times 44$ . a, Sternum.  $\times 44$ .

Fig. 2. Male genitalia.  $\times 44$ .

jecting hook slightly longer than either segments 4 or 5, which are about equal in length. (Fig. 1.)

*Thorax* almost as long as head, pale brown in color with dark brown lateral margins and with a typical, somewhat pear-shaped sternum (Fig. 1, *a*). Prothorax about two-thirds as wide as head, and about one and one-third times as wide as long, roughly rectangular in shape, the sides almost parallel, the posterior edge slightly convex, and with a seta at each latero-posterior rounded angle. Pterothorax roughly trapezoidal in shape and slightly broader than the head or the first abdominal segment, and twice as long as the prothorax. The sides are slightly diverging, with broadly rounded latero-posterior angles in which one seta is situated. Slightly nearer the middle, on the posterior border, there is a group of four very long pustulated setae situated in a small uncolored area. Posterior border slightly angulated on abdomen. Legs pale, with brown borders. Forelegs short, with the coxae narrowly separated, middle and hind legs long, hind legs longest, and with widely separated coxae.

*Abdomen* of nine segments, elongate with sides somewhat parallel, and with a peculiar, somewhat spade-shaped ninth segment. Segments 1 to 8 about equal in length except segments 3 and 4, which are somewhat shorter than the rest; widest at segment 3. Segment 9 slightly bilobed, elongated, slightly longer than wide, and about three-fifths as wide as segment 8. Light brown in color, with dark brown pleurites forming a lateral band interrupted at sutures, lighter brown median markings, and with a clear space or band just inside the lateral band in which the small spiracles on segments 2 to 7 are situated. The general color of the ninth segment is very light brown, with medium dark brown anterior border and lateral borders, thus leaving a clear central portion. On the dorsal surface segment 1 has two setae near middle of anterior border and a curved row of four setae behind these. Segments 2 to 6 have a curved row of six setae near the posterior border of each segment. Segment 7 has four setae, segment 8 has two setae near anterior border and a group of three setae in an elongated triangular uncolored area on each side near the posterior border, the outermost being much the longest. A few setae are present on the ventral surface. On the lateral margins of segments 1 and 2 there are no setae; segments three and four have one seta in posterior angles, and segments five and six have two setae, segment 7 has four setae, and segment 8 has two setae near the anterior border of the segment, one being very long. Segment 9 has three small setae near the anterior border of

the segment. Genitalia distinctive, having an elongated basal plate extending forward into the third abdominal segment (fig. 2).

Description of FEMALE. *Head* as in the male except that the trabeculae and antennae are each about half as large, and the trabeculae are not movable. The antennae, if extended backwards, will not reach the posterior border of head. (See fig. 1.)

*Thorax* and legs as in the male except that the thorax is somewhat shorter and broader.

*Abdomen* slightly longer and somewhat broader than that of the male. Segments 1 to 8 about equal in length; widest at fourth segment. Eighth and ninth segments fused, somewhat trapezoidal in shape, about two-fifths as wide posteriorly as anteriorly, and slightly bilobed. The color is somewhat different from that of the male. The pleurites and the area between them and the spiracles are dark brown, forming a wide dark brown continuous lateral band as the pleurites extend into the preceding segment. The median markings are dark brown also, are separate on segments 1 to 7, and are shaped like an hour-glass, with a diamond-shaped median golden brown area. On segments 5, 6, 7, and 8 there is a longitudinal median brown rod lying in the clear lateral area. The posterior half of segment 8 is dark brown, shading to light brown posteriorly, with a narrow median uncolored area. Setae about the same as on the male.

Description of IMMATURE FORMS. The eleven immature specimens at hand, all over half grown, show the typical angulated front and have the same number of setae in about the same position as the adults.

Average Measurements in mm.

	Male		Female	
	Length	Width	Length	Width
Head .....	0.721	0.483	0.742	0.516
Thorax .....	.612	.583	.606	.611
Abdomen .....	1.863	.637	1.916	.837
Total .....	3.196		3.264	

*Type Host*.—*Gallus domesticus*, chicken.

*Type Locality*.—Great Ragged Island, BAHAMA ISLANDS, BRITISH WEST INDIES.

*Type Slide*.—Cat. No. 43488 U. S. N. M.

The *holotype* male and *allotype* female on the type slide were collected from chicken at the type locality on July 3, 1930, by myself (Bishopp No. 15063). The *paratypes* are in the collection of the Bureau of Entomology and in my personal collection.

This species is most closely related to *Lipeurus laevis* Bedford (1929), described from a wild guinea fowl from Africa, but is easily separated by the angulated front, posterior segment of male, differences in coloration and chaetotaxy, and by being about three-fourths mm. shorter in length. *L. tropicalis* possibly originated from a wild guinea, as I find specimens in the National Museum, collected from five species of wild guineas from Africa, which may be referred to this species, all having the angulated front, although they may be separated as varieties at some future time. *L. tropicalis* is very easily differentiated from *L. heterographus* and *L. caponis*, commonly found on chickens, by its larger size, angulated front, and male genitalia.

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### Notes on the Homing of Several Species of Wasps (Hym. : Chrysididae, Sphegoidea, Vespoidea).

By PHIL RAU, Kirkwood, Missouri.

While taking carpenter-bees and burrowing-bees afield\* to test their ability to find their way back home, it was sometimes possible to pick up various species of wasps also, paint them with distinguishing marks and liberate them, along with the others, at fixed distances from their homes. The results of these experiments are noted below.

Two cuckoo-bees, *Chrysis (Tetrachrysis) laminifera* Bischoff [G. Sandhouse] and *Chrysis (Hexachrysis) sp.* [G. Sandhouse] were liberated on July 10, at 4:20 p.m., one mile from the place of their capture. Both returned the next morning, at 9:10 and 9:50 o'clock. These are parasitic bees, and it is surprising that they should remember and manifest so much interest in the nest of the host and return to it in the same way as does a nesting bee.

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\* Journ. Comp. Psychol. 9: 35-70, 1929.